DOCUMENT RESUME

ED 193 774 EA 013 006

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TITLE Some Conditions that Facilitate Progress Toward the Utilization of New Products or Practices in Local Schools.
PUB DATE Apr 80
NOTE 13p.; Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 7-11, 1980).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Administrator Attitudes; *Adoption (Ideas); Change Agents; *Change Strategies; Educational Change; *Educational Innovation; Elementary Education; *Information Dissemination; Linking Agents; Multiple Regression Analysis; *Program Implementation; School Surveys; State Surveys; Teacher Attitudes
IDENTIFIERS *Florida Linkage System

ABSTRACT

This study examines the relative importance that local school personnel ascribe to certain facilitating conditions identified in the diffusion literature: administrative support of the change process, faculty motivation toward school improvement efforts, participatory decision-making, inservice training efforts, internal advocacy groups, linkage agents, outside resources, technical assistance during the change process, and information about research and development (R&D) products. These and other pertinent factors were related to measures of progress toward implementation of a new program or practice in 23 Florida Linkage System (FLS) project schools. The individual school was the basic unit of analysis. The existence of each of the nine conditions was found to be positively and significantly correlated to both implementation and satisfaction with implementation. However, those conditions that correlated most highly with both implementation and satisfaction were, for the most part, not school characteristics, but were external to the school or supplied by the FLS project: technical assistance, information about R&D products, outside resources, and inservice training. Of those facilitating conditions considered most important by school personnel, only faculty motivation was among those highly correlated with satisfaction. Another important result was that all of the nine facilitating conditions were found to be highly intercorrelated. (Author/IRT)

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Some Conditions That Facilitate Progress Toward the Utilization of New Products or Practices in Local Schools

Meredith Papagiannis Gerry Richardson

Introduction

Much of the national effort to develop new educational technology has shifted to the dissemination and utilization of validated products and practices in local schools. As Emrich and Peterson (1978) pointed out:

> Whereas the 1960's can be characterized as a period of intensive efforts to research and develop ways of improving educational practices and procedures, in the 1970's concern has broadened to include issues of how to improve the flow of knowledge and the transfer of technology to local schools. (p. 1)

As a consequence of this change in emphasis, numerous diffusion and change strategies (as opposed to development strategies) have been designed to direct viable programs or practices toward the solution of local problems.

In applying some of these alternative strategies for educational improvement, certain conditions have been identified which appear to facilitate the change process (for example, administrative support of the change effort, the existence of an in-school advocacy group, or technical assistance from a university or department of education). However, there is little empirical data available to support the implied relationships between "facilitating conditions" and the successful utilization of innovative products or practices in the schools.

Objectives of the Study

The purpose of this study was to examine a variety of facilitating conditions and to compare their relative effects within the context of a federally funded, state directed R & D utilization project - - the Florida Linkage System (FLS). In doing so, it was hoped that useful information could be made available to planners and managers of organized change efforts, who must decide where emphasis should be placed and how to assign human and financial resources most effectively.

In this study facilitating conditions were examined from the perspective of school personnel who were actually involved in school improvement projects. Further, the relationships between these conditions and progress toward implementation of new programs or practices were considered. The specific research objectives were:

A. To determine the relative importance that school personnel ascribe to the following facilitating conditions mentioned in the diffusion literature:
   1. Administrative support of the change process
   2. Faculty motivation toward school improvement efforts
   3. Participatory decision making
   4. Inservice training efforts
   5. Internal advocacy groups
   6. Linkage agents
   7. Outside resources
   8. Technical assistance during the change process
   9. Information about R & D products

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B. To determine how the existence of these facilitating conditions are related to:
   1. The extent of implementation of a specific plan to introduce a new program or practice into the school and
   2. The school's satisfaction with the new program as implemented.

Data Sources and Methods

Data used in this study were obtained from questionnaires, administered to teachers and administrators who were involved in implementing educational improvement projects in twenty-three Florida elementary schools. These projects, located in sixteen counties, were developed through the sponsorship of the Florida Linkage System (FLS), one of seven Research and Development Utilization projects funded by the National Institute of Education (NIE). The FLS project operated at the state level to provide a comprehensive system of support for school-based educational improvement in the area of basic skills instruction. This support included:

1. A problem-solving process designed to promote a participatory approach to problem identification, solution selection and solution implementation within the local school sites, all of which culminated in written problem statements and plans for implementation;
2. Training in group problem-solving skills for "facilitating teams" within the probject schools;
3. A state-level solution search procedure which offered a range of validated R & D products and practices as possible solutions to problems identified by schools;
4. A linkage agent, based at a local Teacher Education Center, to provide technical assistance to the local schools(s) during all stages of problem solving and to serve as a "link" between school-level projects and other sources of assistance (universities, the Florida Department of Education, etc.);
5. A relatively small amount of financial assistance (up to $5,000) available to participating schools for the purpose of purchasing materials, consultant time and meeting other start-up costs.

The support provided by FLS was designed in accordance with a careful review of factors identified in the dissemination and diffusion literature as contributing to the process of implementation of educational innovations. The importance of school-based problem solving, written plans, internal facilitating teams and linkage agents was emphasized. The solutions selected to meet identified needs in participating schools ranged from the installation of new learning materials (and associated inservice training) to the adoption of relatively complex systems of diagnosis and prescription, which sometimes involved substantial organizational change (e.g., shared decision making between faculty and administration). All projects were compensatory in the sense that schools were required to document a need for improvement in basic skills instruction. Most projects focused on reading, some on spelling, and a few on mathematics.

Questionnaire data were collected for purposes of evaluating FLS as a diffusion system as well as evaluating each of the twenty-three school-based projects. This evaluation focused on the solution selection process at site schools, the progress of schools toward implementation, and conditions which affected project implementation.

Progress Toward Implementation

Progress toward implementation was assessed by means of a Status Survey which asked respondents (participating teachers and administrators) to indicate the degree to which the specific program elements in their school's plan had actually been implemented. Respondents were also asked to indicate the degree to which they were

satisfied with each program element. A six-point scale was used for both the degree of implementation and degree of satisfaction measures. Status Surveys were prepared for each school and contained different items in order to accurately reflect the different plans developed by individual schools. The number of items included in the survey questionnaires ranged from 13 to 27.

The Status Survey questionnaire for each school contained items in as many of the following categories as were applicable to the school's plan for solution implementation:

1. School organization
2. Home-school communications
3. Instructional materials/programming; student progress monitoring
4. Facilitative enviornment
5. Evaluation (of program/solution)

All schools planned for changes in instructional materials and programming, the nature of the school's facilitative environment, and evaluation procedures. Only five schools planned for changes in school organization. Eleven schools planned for changes in home-school communications.

The Status Surveys contained items related to both process (inservice training, use of consultants, etc.) and product use. When results were analyzed in terms of product use alone, no significant difference was found between results based on product use scores and scores obtained for the whole survey. In addition, responses from teachers and administrators were compared to determine if the two groups were characteristically different. No significant difference was found. Thus, the implementation data used in the present study was based on the perceptions of all participating school personnel, rather than on separate analyses for separate groups or separate sets of items.

Facilitating Conditions

The importance and existence of the eight "facilitating conditions" examined in this study were assessed by means of a Facilitating Conditions Survey. This survey asked teachers and administrators to indicate the importance and the existence (in their schools) of 25 conditions which were identified in the available literature or through the opinions of school personnel with regard to the successful implementation of school improvement efforts. Respondents used two six-point scales to record their perceptions of the importance and existence of each condition. The alpha reliability coefficients for these two scales were estimated at .95 and .97, respectively.

The Facilitating Conditions Survey contained items which related to both characteristics internal to the school itself (such as administrative support and faculty motivation) and a variety of activities and sources of assistance designed to facilitate project implementation. The major kinds of support supplied by the FLS state-level project were all included. For the purposes of this study, the survey items were grouped under the following categories identified in the literature.

Administrative support of the change process. After studying five evaluation reports of educational dissemination and change projects across the nation, Emrick and Peterson (1978) included as one of their major findings that "administrators occupy a crucial role in supporting the utilization process" (p. xi). Goodlad (1976) expressed his conviction that principals are the key to change in the public schools. This is in agreement with the separate findings of Lieberman and Tye (1973), as well as an earlier study by Hilfiker (1970), who found that the social support provided by the principal was significantly related to school innovativeness.

The following survey items were used to define this facilitating condition:

1. Administrative acceptance of faculty input
2. Commitment of the principal to the change process
3. Open communications among faculty and administration

Faculty motivation toward school improvement efforts. Another key element of the school's organizational climate toward change seems to be the motivation and enthusiasm of the faculty who must eventually implement some change in the materials and/or practices which are used in the classroom. Their motivation toward the change effort, either opportunistic or problem-solving, was cited by Berman and McLaughlin (1975) as a significant factor in school improvement. Pellegrin (1975) noted "an almost universal belief that success in innovation is assured if the people involved in implementation are hard-working, able, sincere, and dedicated to the values and objectives to be furthered . . . " (p. 97).

The following survey items were used to define this facilitating condition:

1. Enthusiasm of the faculty
2. Willingness of the faculty to consider a variety of solutions to problems/needs
3. Willingness of the faculty to work together on team assignments or projects

Participatory decision-making. The degree to which participatory decision-making and open communications characterize the school's effort to change has been given considerable attention. Buchanan (1967) maintained that the effectiveness of improvement efforts is enhanced when they are planned by the school's own faculty and administration. Tye and Novotney (1975) said that:

> One thing we know is that we can no longer rely on decisions made only by those designated as "leaders" or administrators . . . . . decisions about the classroom need to be made by teachers and those with whom they work. (p. 40)

Emrick and Peterson (1978) found that "user commitment and implementation success are most often found in areas where user staff have been active participants throughout the utilization change process" (p. 70).

The following survey items were used to define this facilitating condition:

1. Opportunity for faculty to participate in the evaluation of alternative solutions
2. Opportunity to vote or otherwise express an opinion about major decisions

Inservice training efforts. Rubin (1978) stated that "a number of factors have elevated what once was regarded as a dull and fruitless endeavor to a focal point of considerable interest . . . consequently, inservice education . . . now is regarded as a major force in school improvement." (p. ix)

The following survey item was used to define this facilitating condition:

Appropriate inservice training activities

Internal advocacy groups. Perhaps one of the most important, but least utilized, sources of assistance and support comes from within the individual school itself. Rassmussen and Adrianne (1973) recognized the powerful influence which teacher groups can have on change efforts within the local school. Goodlad (1975) proposed that "if change within the school is going to be significant . . . the school will require a supportive peer reference group" (p. 180). House (1976) maintained that the "successful implementation of an innovation ultimately depends on whether an internal advocacy group is formed around it" (p. 338). In agreement, Kritek (1976) said that "advocates defend the integrity of the special program, recruit members, infuse them with values, and secure adequate resources" (p. 97).

The following survey item was used to define this facilitating condition:

Availability of assistance from an internal "facilitating team" (composed of at least two teachers and the local school principal)

Linkage agents. Jung (1967) observed that:

> There appear to be gaps between . . . teachers . . . and various kinds of resources that could help them do their jobs more effectively . . . The trainer change-agent role may be seen as providing linkage across such gaps. (p. 90)

Havelock (1971; 1973) further emphasized the concept of linkage and advocated the participation of specially trained "linkage agents" in the process of local school improvement.

The following survey item was used to define this facilitating condition:

Availability of assistance from a linking agent

Outside resources. The addition of outside resources to provide for the material and training needs of the individual school has been a common feature of most recent diffusion strategies. Corwin (1975) found that "resources for change from outside of the school" were an important factor in determining its "innovativeness" (p. 31). However, Berman and McLaughlin (1975) found that the clientele of many federal assistance projects were motivated to acquire additional resources for the prupose of embellishing existing programs rather than seeking out and implementing new programs or practices better suited to the school's individual needs. Emrick and Peterson (1978) reported that "the vast majority of utilizations initiated by the federal seed money programs failed to accomplish meaningful change and/or tended to be discontinued after withdrawal of support funds" (p. 63).

The following survey item was used to define this facilitating condition:

Outside resources to supply the material and training needs of the school (relative to the innovation being attempted)

Technical assistance. Through the established structures of the district administration, individual schools can be provided access to university faculty, state department of education personnel and program or company representatives, all of whom can provide some degree of needed assistance during project implementation. In many school districts in Florida, Teacher Education Centers have assumed much of the responsibility for coordinating inservice training and technical assistance. According to Van Fleet, Kinzer and Lutz (1976), Teacher Education Centers differ from conventional staff development arrangements principally in the manner by which decisions are made. The actual availability of resource personnel does not seem to be significantly different from what might be present in districts without centers (pp. 10-11). In the FLS project, Teacher Centers were integral to the overall design.

The following survey items were used to define this facilitating condition:

1. Availability of technical assistance in problem identification and description
2. Availability of technical assistance during implementation

Information about R & D products. Helping to put teachers and administrators in contact with information and sources of technical assistance has also been stressed in the change literature. Miles (1964) recognized the need for linkage among school personnel and appropriate resources. Lippitt (1967) said that "several key challenges of change . . . can be coped with by the framework of retrieving, processing, and using external knowledge resources" (p. 74). In addition, he maintained that "closing the gap between good intentions and effective actions . . . requires a process of retrieving internal knowledge from the self and external knowledge from research on decision making and action taking" (p. 74).

Havelock (1967) said:

> Education is a field which has been viewed by many as underdeveloped and more or less irrational in its knowledge retrieval and utilization practices . . . There is a growing quantity of new knowledge which

> has a high relevance to educators at all levels. Yet until now there have been few formal channels through which this new knowledge could flow to these potential users. (p. 48)

Goodlad (1975) proposed that "an effective change strategy is one through which the alternative best suited to the needs of a given institution come to the attention of those in it and are used in a continuous process of improvement" (p. 19).

The following survey item was used to define this facilitating condition:

> Information about validated materials or practices (supplied through FLS by the Options for Research and Development Unit)

Research Questions and Analyses

The data presented in this study address five groups of research questions:

1. What was the relative importance that local schools ascribed to the nine facilitating conditions selected for study?
2. To what extent did school personnel perceive these conditions as existing within their school?
3. To what extent were "importance" and "existence" correlated?
4. How were the nine facilitating conditions together related to progress toward and satisfaction with implementation of specific project plans? (How much of the total variability among schools can be explained by these nine conditions when they are considered together?)
5. To what extent were particular facilitating conditions related to implementation? To what extent were facilitating conditions interrelated?

Unit of Analysis

For all variables measured in this study, the unit of analysis was the local school mean, rather than the scores of individual respondents. This was done, not only because each school implemented a different project, but also because each school was conceived of as having a separate environment with a unique set of features. In support of this rationale, it was found that the perceived importance of facilitating conditions was contingent, at least to some extent, upon the particular circumstances which existed at an individual school. An analysis of variance using perceived "importance" of the facilitating conditions as the dependent variable, confirmed that a school effect was significant.

Similarly, it was found that the degree to which facilitating conditions were perceived to exist at local schools was also dependent on unique features within the individual schools. Therefore, it was decided that school means would be the most appropriate unit of analysis.

School means (Table 1) and Pearson Product Moment correlations (Table 2) for both dependent and independent variables were determined. In addition, a series of regression analyses were performed using facilitating conditions as predictors of both implementation and satisfaction with implementation. Predictor variables were entered in the order of their zero-order correlations (highest to lowest) with the dependent variables. The results are shown in Table 3.

Results

Importance and Existence of Nine Facilitating Conditions

All nine facilitating conditions were seen as important by teachers and administrators in the FLS project schools (see Table 1). "Importance" scores ranged from 4.9 to 5.5 on a six-point scale. The most important condition appeared to be administrative support of the change process, followed by faculty motivation, inservice training efforts and participatory decision making. These four conditions can be

seen to originate from within the school environment. Only inservice training was dependent on resources and personnel external to the school unit although this form of support was largely controlled by the schools' participation in the FLS project.

In the opinion of school personnel, linkage agents, internal advocacy groups, technical assistance, outside resources and information on R & D products were of lesser importance. In addition, these facilitating conditions were (with only one exception) related to external support for school improvement efforts. The internal advocacy groups, called "facilitating teams," were specified by the FLS project design, rather than being pre-existing groups in the project schools. As a result, internal advocacy groups were associated with both the external and internal support systems.

The perceived existence of the nine facilitating conditions included in the study were found to be moderately correlated (rho = .60) with the perceived importance of these conditions (see Table 3). Although generally rated lower than importance, the degree of existence reported for the facilitating conditions was nonetheless high, with existence scores ranging from 3.9 to 4.5 on a six-point scale.

The existence of "linkage agents" was the most pervasive condition reported by project personnel and was followed by inservice training. Both of these conditions were built into the FLS design. Administrative support was seen as the next most evident condition, then faculty motivation, outside resources, internal advocacy groups, participatory decision making, information on R & D products and, last, technical assistance.

Relationship of Facilitating Conditions to Progress Toward Implementation

Table 2 presents a correlation matrix of the nine facilitating conditions based on their existence scores, the degree of project implementation, and the degree of satisfaction with the progress of implementation. This matrix reveals statistically significant and moderately high zero-order correlations among the facilitating conditions and the two dependent variables. The facilitating condition that was most highly correlated with both implementation and satisfaction was technical assistance ($r = .76$ with satisfaction; $r = .69$ with implementation). This finding was surprising, given that school personnel ranked technical assistance very low in terms of both importance and existence.

Other conditions and their correlations with satisfaction were: information about R & D products ($r = .72$); faculty motivation ($r = .70$); outside resources ($r = .67$); inservice training ($r = .65$); participatory decision making ($r = .64$); internal advocacy groups ($r = .59$); linkage agents ($r = .58$); and administrative support ($r = .57$). In all cases, the facilitating conditions were correlated higher with satisfaction than with implementation.

For several reasons, the use of satisfaction with planned program improvements seems to be a preferable measure of progress toward implementation. First, this measure attempts to get beyond the mere mechanical implementation of a plan. In fact, though implementation and satisfaction were highly correlated ($r = .89$), there were several instances in which school personnel reported implementation but much lower satisfaction. Follow-up inquiries revealed that often these schools had been "force fed" a project and teachers were not happy with the results, even though they had "gone through the motions." Lasting change would seem less likely in such a situation. Satisfaction as measured by the Status Survey turned out to be a more conservative measure of progress toward implementation though the difference in most schools was small.

In order to assess the degree to which the nine facilitating conditions accounted for variance in implementation and satisfaction scores, regression analyses were performed (see Table 3). It was found that all nine facilitating conditions, taken together, explained 69% of the variance in satisfaction at a significance level of .03.

The results of a similar analysis, when implementation was used as the dependent variable, were not statistically significant.

An examination of the independent contributions of each of the nine facilitating conditions found that none contributed significantly by itself. Each variable accounted for a relatively large proportion of variance to a statistically significant degree when entered first into the regression equation, but none reached significance when entered last. Beacuse all variable were found to be highly intercorrelated, analyses of their separate effects did not reveal any basis for sound conclusions on independent effects. In addition, because the unit of analysis was the school, these analyses were based on a very small number of cases (n = 23), leading to doubts about the reproducibility of results.

Discussion

In general, this study found that all nine facilitating conditions were considered important by school personnel. Those conditions felt to be most important tended to be those internal to the school itself and, presumably, most under the control of teachers and administrators. The existence of these conditions in the schools also tended to be judged relatively high. Those conditions considered most in existence were a mix of project supplied aids (linker, inservice) and school characteristics (administrative support and faculty motivation).

The existence of each of the nine facilitating conditions as defined in the study was found to be positively and significantly correlated to both implementation and satisfaction with implementation. Most facilitating conditions were correlated to a high degree. However, those conditions which correlated most highly with both implementation and satisfaction were, for the most part, not school characteristics. Rather, they were external to the school or supplied by the FLS project. Technical assistance, information about R & D products, outside resources, and inservice training were among the most highly correlated with both implementation and satisfaction. Of those facilitating conditions considered most important by school personnel, only faculty motivation was among those conditions highly correlated with satisfaction. This finding casts some doubt on the accuracy of teacher perceptions as to the relative importance of these facilitating conditions.

Another important result of this study was that all of the nine facilitating conditions were found to be highly intercorrelated. Whether this is an artifact of the measurement techniques used or due to the fact that these variables are inextricably interdependent would be a fruitful line of inventigation in another study. For purposes of research, it is desirable to develop variables which are discrete and non-overlapping. However, for purposes of conducting school improvement efforts in the field, the fact that the effects of various facilitating conditions overlap or reinforce each other may provide considerable program strength. The high zero-order correlations of facilitating conditions with implementation and satisfaction and the high degree of intercorrelation among them leads to the conclusion that, when taken as a group, these facilitating conditions are related to implementation and satisfaction with implementation. In addition, while the relative contribution of each condition is not available to assessment based on the results of this study, we can be confident that the constellation of these facilitating conditions has a good deal of predictive value for satisfaction with the implementation of school improvement efforts.

Table 1

Mean (of School Means) Importance and Existence of Nine Facilitating Conditions as Perceived by Users of Educational Innovations in 23 Schools

	Importance	Rank	Existence	Rank[a]
Administrative support of the change process	5.462	1	4.284	4
Faculty motivation toward school improvement efforts	5.393	2	4.245	5
Inservice training efforts	5.216	3	4.393	2
Participatory decision making	5.148	4	4.001	7
Linkage agents	5.080	5	4.485	1
Internal advocacy groups	5.019	6	4.296	3
Technical assistance during the change effort	4.959	7	3.895	9
Outside resources	4.942	8	4.089	6
Information on R & D products	4.874	9	3.998	8

[a]rho for importance and existence ranks = .60

Table 2

Correlation Matrix: Nine Facilitating Conditions

and Indices of Implementation and Satisfaction with Implementation[a]

	Admin. Support	Faculty Motivation	Particip. Decision-Making	Info. on R & D Products	Technical Assistance	Inservice Training	Internal Advocacy Groups	Linking Agents	Outside Resources	Implementation	Satisfaction
Admin. Support		.73	.71	.56	.52	.55	.57	.58	.37	.42	.57
Faculty Motivation			.81	.61	.66	.59	.75	.76	.54	.51	.70
Particip. Decision-Making				.75	.76	.56	.80	.87	.51	.56	.64
Info. on R & D Products					.94	.83	.73	.61	.78	.68	.72
Technical Assistance						.82	.80	.67	.83	.69	.76
Inservice Training							.69	.46	.88	.57	.65
Internal Advocacy Groups								.75	.58	.52	.59
Linkage Agents									.40	.53	.58
Outside Resources										.55	.68
Implementation											.89
Satisfaction											

[a]All correlations are significant for $\alpha \leq .05$

Table 3

Summary Table from Regression Analysis of

Nine Facilitating Conditions with Satisfaction

	Significance	R Square	R Square Change	Significance
Technical assistance	.000	.57816	.57816	.000
Information on R & D products	.825	.57921	.00105	.000
Faculty motivation	.063	.65099	.07177	.000
Outside resources	.625	.65571	.00472	.000
Inservice training	.723	.65831	.00260	.001
Participatory decision-making	.540	.66647	.00816	.003
Internal advocacy group	.324	.68813	.02167	.006
Linking agent	.982	.68815	.00001	.013
Administrative support	.664	.69281	.00466	.027